

Sub C1  
B2  
11. (Amended) An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10, which protein binds to CD40.

Sub C1  
B2  
13. (Amended) An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:7 as determined by use of the BLASTp computer program, which protein binds to CD40.

14. (Amended) An isolated nucleic acid comprising a nucleotide sequence encoding a protein, which protein competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110, and which protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%.

Sub C1  
B2  
16. (Amended) An isolated nucleic acid which hybridizes to the complement of a DNA consisting of a coding DNA sequence encoding a protein consisting of the amino acid sequence of SEQ ID NO:7, under highly stringent conditions, which isolated nucleic acid encodes a protein that binds CD40.

B3  
17. (Amended) A recombinant cell containing a recombinant nucleic acid comprising a nucleotide sequence encoding a protein, which protein competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110, and which protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%.

18. (Amended) A recombinant cell containing a recombinant nucleic acid comprising SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:15.

19. (Amended) A method of producing a protein comprising:  
(a) growing a cell containing a recombinant nucleic acid encoding a protein, which protein competes for binding to CD40 with monoclonal antibody S2C6 as

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deposited with the ATCC and assigned accession number PTA-110, and which protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%, such that the protein is expressed by the cell; and

(b) recovering the expressed protein.

20. (Amended) A method of producing a protein comprising:

(a) growing a cell containing a recombinant nucleic acid encoding a protein comprising SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10, such that a protein encoded by said nucleotide sequence is expressed by the cell; and

(b) recovering the expressed protein.

Please add the following new claims:

Sub C1  
38. (New) An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10, which protein (a) binds CD40, and (b) is a fusion protein comprising the amino acid sequence of a second protein that is not an antibody.

39. (New) An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:7 as determined by use of the BLASTp computer program, which protein (a) binds CD40; and (b) comprises a human immunoglobulin constant domain.

B4  
40. (New) An isolated nucleic acid comprising a nucleotide sequence encoding a protein comprising an amino acid sequence that comprises regions having at least 80% identity to SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO:10, respectively, as determined by use of the BLASTp computer program, which protein (a) binds CD40; and (b) comprises a human immunoglobulin constant domain.

41. (New) The isolated nucleic acid of claim 40, wherein the protein comprises at least 2 CDR sequences selected from the group consisting of SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO 10.

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42. (New) An isolated nucleic acid comprising a nucleotide sequence encoding a protein that (a) binds to CD40; (b) increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%; and (c) comprises a human immunoglobulin constant domain.

43. (New) An isolated nucleic acid comprising a nucleotide sequence encoding a protein which (a) competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110; (b) comprises at least 2 CDR sequences selected from the group consisting of SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO 10; and (c) comprises a human immunoglobulin constant domain.

44. (New) The isolated nucleic acid of claim 43, wherein the protein comprises SEQ ID NO:8 and SEQ ID NO:10.

45. (New) The isolated nucleic acid of claim 38, wherein the protein comprises an amino acid sequence of bryodin (BD1) fused to SEQ ID NO:7 fused to SEQ ID NO:2.

46. (New) The isolated nucleic acid of any of claims 38-45, wherein the protein is an antibody.

47. (New) The isolated nucleic acid of claim 46, wherein the antibody is a chimeric antibody.

48. (New) The isolated nucleic acid of claim 46, wherein the antibody is a humanized antibody.

49. (New) The isolated nucleic acid of claim 46, wherein the antibody is a human antibody.

50. (New) The isolated nucleic acid of claim 38, wherein the protein comprises SEQ ID NO:7.

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51. (New) The isolated nucleic acid of claim 38 or 50, wherein the protein further comprises SEQ ID NO:2.

52. (New) The isolated nucleic acid of claim 14 or 42, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 50%.

53. (New) The isolated nucleic acid of claim 14 or 42, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 60%.

54. (New) The isolated nucleic acid of claim 14 or 42, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 65%.

55. (New) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%.

56. (New) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 50%.

57. (New) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 60%.

58. (New) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 65%.

59. (New) The isolated nucleic acid of claim 10 which comprises SEQ ID NO:6.

60. (New) The isolated nucleic acid of claim 11, wherein the protein comprises SEQ ID NO:7.